

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

_____)
IN THE MATTER OF:)
)
Lammers Barrel Site [SITE NO.05BX])
)
RESPONDENTS)
)
See Attachments)
)
Proceeding Under Sections 104, 122(a),122(d),)
Comprehensive Environmental Response,)
Compensation, and Liability Act as amended)
(42 U.S.C. Sections 9604, 9622(a),)
9622(d)(3)).)
_____)

ADMINISTRATIVE ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

I. INTRODUCTION

1. This Administrative Order on Consent (“Consent Order”) is entered into voluntarily by the United States Environmental Protection Agency (“EPA”) and the Respondents listed in Attachment A to this Consent Order (“Respondents”). Attachment A is hereby wholly incorporated by reference into this Consent Order. The Consent Order concerns the preparation of, performance of, and reimbursement for all costs associated with the performance of and oversight of the remedial investigation and feasibility study (“RI/FS”) at the Lammers Barrel Factory Site (the “Site”) located at the northeast corner of the intersection of Grange Hall and East Patterson Roads in Greene County, Ohio.

II. JURISDICTION

2. This Consent Order is issued under the authority vested in the President of the United States by Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), as amended, 42 U.S.C. Sections 9604, 9622(a) and 9622(d)(3). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (1987), and further delegated to Regional Administrators on September 13, 1987, by EPA Delegation Nos. 14-14-C. This authority was re-delegated by the Regional Administrator to the Director, Superfund Division, Region 5 on May 2, 1996.

3. Respondents agree to undertake all actions required by the terms and conditions of this Consent Order. In any action by EPA or the United States to enforce the terms of this Consent Order, Respondents consent to and agree not to contest the authority or jurisdiction of the Regional Administrator to issue or enforce this Consent Order, and agree not to contest the validity of this Consent Order or its terms.

III. PARTIES BOUND

4. This Consent Order shall apply to and be binding upon EPA and shall be binding upon Respondents, their agents, successors, assigns, officers, directors and principals. Respondents are jointly and severally responsible for carrying out all actions required of them by this Consent Order. The signatories to this Consent Order certify that they are authorized to execute and legally bind the parties they represent to this Consent Order. No change in the ownership or corporate status of the Respondents or of the Site shall alter Respondents’ responsibilities under this Consent Order.

5. Respondents shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets in a corporate acquisition are transferred. Respondents shall provide a copy of this Consent Order to each contractor hired to perform the work required by this Consent Order and to each person representing any Respondent with respect to the Site, within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondents shall condition any such contracts upon satisfactory compliance with this Consent Order. Respondents or their contractors shall provide written notice of the Consent Order to all subcontractors hired to perform any portion of the work under this Consent Order. Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Consent Order and for ensuring that their subsidiaries, employees, contractors, consultants, subcontractors, agents and attorneys comply with this Consent Order. With regard to the activities undertaken by Respondents pursuant to this Consent Order, each contractor and subcontractor shall be deemed to be in a contractual relationship with Respondents within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). EPA will consider work approved by EPA under this Order to be consistent with the NCP.

IV. STATEMENT OF PURPOSE

6. In entering into this Consent Order, the objectives of EPA and Respondents are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site or facility, by conducting a remedial investigation; (b) to determine and evaluate alternatives for remedial action (if any) to prevent, mitigate or otherwise

respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site or facility, by conducting a feasibility study; and (c) to recover response and oversight costs incurred by EPA with respect to this Consent Order.

7. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS, and for a record of decision that is consistent with CERCLA and the National Contingency Plan (“NCP”), 40 C.F.R. Part 300. The activities conducted under this Consent Order shall be conducted in compliance with the NCP and all applicable published EPA guidances, policies, and procedures.

V. FINDINGS OF FACT

EPA makes the following findings of fact:

8. The Site is located at the northeast corner of the intersection of Grange Hall and East Patterson roads in Beaver Creek, Greene County, Ohio.

9. The Site includes two acres mostly covered with vegetation and bounded to the North by an abandoned railroad right-of-way, to the East by a parking lot and public picnic area, to the South by East Patterson Road and to the West by Grange Hall Road (“the Gorby property”).

10. A gas station and auto service facility are located south of East Patterson Road.

11. The geology in the area of the Site consists of a sand and gravel aquifer, with interbedded silts and clay.

12. Little Beaver Creek flows from west to east across the Site.

13. Several pipes can be observed extending out from the Site into Little Beaver Creek.

14. The nearest residences are located approximately 400 feet to the east and southeast of the Site.

15. The operations conducted at the Site included solvent recovery and barrel reconditioning from approximately 1953 until 1969. Before that time, operations included the manufacture of paint.

16. Between approximately 1953 and 1969, two companies conducted operations at the Site under various names, including: Lammers Inc., Kohnen Chemical Co., Kohnen-Lammers, Inc., Lammers Barrel Inc., Lammers Barrel Corp., Kohnen Chemical and Barrel Co., Kohnen and Lammers Chemical Company, and Lammers and Kohnen Barrel Company.

17. Chemical solvents such as trichloroethylene ("TCE"); methyl ethyl ketone; tetrachloroethene; 1,1,1-trichloroethane; aromatic hydrocarbons; aliphatic hydrocarbons; ketones; esters; and alcohols were stored at the Site in the 1953 to 1969 time frame.

18. On September 30, 1969, a fire destroyed operations at the Site.

19. Hazardous substances, including TCE, xylenes, ethylbenzene, benzene, and vinyl chloride have been detected in groundwater at the Site. Hazardous substances, including TCE, PCBs, benzene, toluene, ethyl benzene and xylene ("BTEX"), lead, arsenic and other metals have been detected in soils at the Site. Hazardous substances, including xylenes, ethyl benzene, heavy metals, Bis(2-ethylhexyl)phthalate and poly aromatic hydrocarbons ("PAHs"), including pyrene, fluoranthene, and benzo(b)fluoranthene, have been detected in sediments at the Site.

20. Soils samples taken from the Site in 1997 contained elevated levels of halogenated volatile organic compounds ("VOCs"), semi-volatile organic compounds ("SVOCs"), PCBs, BTEX, lead, arsenic and other metals, with higher concentrations found below the surface.

21. Concentrations of total VOCs in soils ranged up to 12,215,900 ppb.

22. PCB concentrations in soils ranged from non-detect to 42 ppm.

23. Lead concentrations in soils ranged from 4.7 to 5100 ppm. Lead was detected at the surface at 1,100 ppm.
24. TCE was detected at the surface at a concentration of 6.3 ppb.
25. Sediment samples taken at the Site in 1997 contained xylenes, ethyl benzene, arsenic and SVOCs, including PAHs. Concentrations found in sediments included 97,000 ppb of total xylenes, 9,800 ppb of Bis(2-ethylhexyl)phthalate; and, for PAHs included 1,400 ppb of pyrene, 1,100 ppb of fluoranthene, and 800 ppb of benzo(b)fluoranthene. Levels of arsenic up to 8.5 ppm were also found in sediments.
26. Contaminated soils at the Site have affected the groundwater.
27. Monitoring wells sampled at the Site in 1997 were also found to contain VOCs, SVOCs and metals. Maximum groundwater concentrations were 110 ppb of TCE, 195 ppb of total xylenes, 95 ppb of ethylbenzene, 30 ppb of benzene, and 17 ppb of vinyl chloride.
28. U.S. EPA has detected VOCs at levels up to 529 ppb in residential wells in the area, with the highest levels detected in homes along the northern side of East Patterson Road, approximately 500 feet east of the Site. Not all residential wells in the area have been sampled and only certain residences have been connected to the public water supply of Greene County.
29. U.S. EPA has conducted two removal actions at the Site.
30. In the first action, which took place from 1985 until 1986, U.S. EPA connected nine residences in the Valleywood Subdivision to the public water supply because elevated levels of vinyl chloride were detected in their wells.

31. An Engineering Evaluation and Cost Analysis (“EE/CA”) conducted by EPA in 1997 was the basis for the second removal action, which began in 2000. EPA issued the Action Memo for this second removal on September 30, 1999.

32. The proposed actions in the September 30, 1999 Action Memo were to: a) reduce the concentrations of hazardous substances in soils and groundwater by using Dual Phase Extraction Technology, (b) address residential wells affected by the existing plume of hazardous substances by extending the waterline to such residences and (c) perform long-term monitoring of Site and groundwater to ensure protection of residential wells not yet affected.

33. In the second removal action, U.S. EPA connected 4 additional residences in the Woodhaven Subdivision (previously the Valleywood Subdivision) to the public water supply because elevated levels of TCE were detected in their wells. These wells were located approximately 400 feet south east of the southern boundary of the Gorby property.

34. As part of this removal action, additional investigations have also been conducted at the Site. Two hydrogeologic investigations have demonstrated that (a) the horizontal and vertical extent of affected soil varies at the Site and is not completely defined; (b) based on soil analytical results, the minimum amount of soil affected by VOCs above remedial action levels determined in Action Memo (9/30/99) is estimated at 38,700 cubic yards (based on a depth of 20 feet of affected soil); (c) perched water zones were encountered 15 to 19.5 feet below ground surface; (d) the hydraulic characteristics of the perched zones remain undefined; and (e) the horizontal and vertical extent of affected groundwater varies across the Site and remains relatively undefined since deeper groundwater characterization was not completed.

35. On April 3, 2001 an Action Memo requesting a change in Project Scope was approved by U.S. EPA. Additional groundwater and residential well sampling took place in April 2001.

36. Some homes in the area have not been connected to the public water supply and are still relying on potentially affected wells. Of the wells sampled in April 2001, VOCs were detected in three of them. Not all residential wells were sampled and the number of potentially affected wells may be higher.

37. At least two of the residences connected to the public water supply still continue to use their affected wells for outdoor purposes.

38. The distribution of hazardous substances in groundwater has not been fully defined.

39. Currently, the Site is not listed on the National Priorities List ("NPL"). The Site may be proposed for inclusion on the NPL pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

40. Helen Gorby is an "owner" of the Site, within the meaning of Sections 101(20) and 107(a)(1) of CERCLA, 42 U.S.C. §§ 9601(20) and 9607(a)(1). The other Respondents listed in Attachment A are either (1) persons who at the time of disposal of any hazardous substance owned or operated the Site within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2), or (2) persons who arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment of hazardous substances at the Site within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

41. In 1989, U.S. EPA entered into an agreement with Lamson & Sessions, the Ford Motor Company, General Motors Corporation, Navistar International, Monsanto, Specialty Papers Company, Aluminum Company of America, Virginia Lammers, and Anthony Kohnen under

CERCLA Section 122(h), 42 U.S.C. § 9622 (h), to resolve certain past costs incurred in connecting nine residences of the Valleywood Subdivision to the public water supply.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

EPA makes the following conclusions of law and determinations:

42. The Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

43. Waste materials, and constituents thereof, that Respondents sent to the Site, disposed of at the Site, and/or transported to the Site were or contained "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), or constituted "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1). In addition, substances detected in the soil and groundwater at the Site identified in paragraphs 19 through 28 are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), or constitute "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1).

44. The presence of hazardous substances at the Site or the past, present or potential migration of hazardous substances currently located at or emanating from the Site, constitute actual and/or threatened "releases" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

45. Respondents are "persons" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

46. Respondents are potentially responsible parties under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622.

47. The actions required by this Consent Order are necessary to protect the public health or welfare or the environment, or in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

VII. NOTICE

48. By providing a copy of this Consent Order to the State of Ohio, EPA is notifying the State of Ohio that this Consent Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by the Consent Order.

VIII. WORK TO BE PERFORMED

49. All work performed under this Consent Order shall be under the direction and supervision of qualified personnel. Within 45 days of the effective date of this Consent Order, and before the work outlined below begins, Respondents shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such work. With respect to any proposed contractor, the Respondent(s) shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the work for Respondents shall be subject to EPA's review, for verification that such persons

meet minimum technical background and experience requirements. This Consent Order is contingent on Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in this Consent Order. If EPA disapproves in writing of any person(s)' technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement(s) within 30 days of the written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Consent Order and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. EPA will indicate its basis for such subsequent disapproval in writing. During the course of the RI/FS, Respondents shall notify EPA in writing of any changes or additions in the personnel used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to personnel as it has hereunder regarding the initial notification.

50. Respondents shall conduct activities and submit deliverables as provided by the attached RI/FS Statement of Work ("SOW"), which is incorporated by reference, for the development of the RI/FS. All such work shall be conducted in accordance with CERCLA, the NCP, and consistent with published EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01), "Guidance for Data Usability in Risk Assessment" (OSWER Directive #9285.7-05) and guidances referenced therein, and guidances referenced in the SOW, as may be amended or modified by EPA under this Consent Order. The general activities that Respondents are required to perform are identified below, followed by a list of deliverables. The tasks that Respondents must perform are described more fully in the SOW and must be

consistent with published guidance. The activities and deliverables identified below shall be developed as provisions in the work plan and sampling and analysis plan, and shall be submitted to EPA as provided. All work performed under this Consent Order shall be in accordance with the schedules herein, and in full accordance with the standards, specifications, and other requirements of the work plan and sampling and analysis plan, as initially approved or modified by EPA, and as may be amended or modified by EPA from time to time under this Consent Order. For the purposes of this Consent Order, day means calendar day unless otherwise noted in the Consent Order.

A. Task I: Scoping. EPA determines the Site-specific objectives of the RI/FS and devises a general management approach for the Site, as stated in the attached SOW. Respondents shall conduct the remainder of scoping activities as described in the attached SOW and consistent with published guidance. At the conclusion of this project planning phase, Respondents shall provide EPA with the following deliverables:

1. RI/FS Work Plan. Within ninety (90) days of the effective date of this Consent Order, Respondents shall submit to EPA a complete RI/FS work plan. If EPA disapproves or requires revisions to the RI/FS work plan, in whole or in part, Respondents shall amend and submit to EPA a revised work plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

2. Sampling and Analysis Plan. Within ninety (90) days of the effective date of this Consent Order, Respondents shall submit to EPA the sampling and analysis plan. This plan shall consist of a field sampling plan (FSP) and a quality assurance

project plan (QAPP), as described in the SOW and consistent with published guidance including, without limitation, “EPA Guidance for Quality Assurance Project Plans (QA/G-5)” (EPA/600/R-98/018, February 1998), and “EPA Requirements for Quality Assurance Project Plans (QA/R-5)” (EPA 240/B-01/003, March 2001). If EPA disapproves of or requires revisions to the sampling and analysis plan, in whole or in part, Respondents shall amend and submit to EPA a revised sampling and analysis plan which is responsive to all EPA comments, within twenty-one (21) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing. Following approval or modification by EPA, the RI/FS work plan and the sampling and analysis plan are incorporated by reference herein.

3. Site Health and Safety Plan. Within ninety (90) days of the effective date of this Consent Order, Respondents shall submit to EPA the Site health and safety plan.

B. Task II: Community Relations Plan. EPA will prepare a community relations plan, in accordance with EPA guidance and the NCP. Respondents shall provide information supporting EPA's community relations programs.

C. Task III: Site Characterization. Following EPA approval or modification of the work plan and sampling and analysis plan, Respondents shall implement the provisions of these plans to characterize the Site. Respondents shall complete Site characterization within the timeframe specified in the RI/FS Work Plan. Respondents shall provide EPA with analytical data within twenty-one (21) days of receipt from the laboratory, in an electronic format (i.e., computer disk or equivalent) showing the location, medium and results. Within seven (7) days of completion of

field activities, Respondents shall notify EPA in writing. During Site characterization, Respondents shall provide EPA with the following deliverables, as described in the SOW and work plan:

1. Technical Memorandum on Modeling of Site Characteristics. Where Respondents

propose that modeling is appropriate, Respondents shall submit a technical memorandum on the proposed model(s) prior to their use, as described in Task 3b of the SOW. If EPA disapproves of or requires revisions to the technical memorandum on modeling of Site characteristics, in whole or in part, Respondents shall amend and submit to EPA a revised technical memorandum on modeling of Site characteristics which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

2. Draft Remedial Investigation Report [See Task 3e of the attached SOW.] Within 180

days of the collection of the last field sample as part of the RI (as designated by the U.S. EPA), Respondents shall submit a draft remedial investigation report ("RI Report") consistent with the SOW, work plan, and sampling and analysis plan according to the schedule provided in the RI/FS Work Plan ("the Work Plan"). If EPA disapproves of or requires revisions to the draft RI report, in whole or in part, Respondents shall amend and submit to EPA a revised RI report which is responsive to the directions in all EPA comments, within forty-five (45) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing.

D. Task IV: Treatability Studies. Respondents shall conduct treatability studies, except where Respondents can demonstrate to EPA's satisfaction that they are not needed. Major

components of the treatability studies include determination of the need for and scope of studies, the design of the studies, and the completion of the studies, as described in the SOW.

Respondents shall submit the following deliverables:

Identification of Candidate Technologies Memorandum. This memorandum shall be submitted pursuant to the schedule in the Work Plan. This memorandum shall include specific deliverables and schedules for completing treatability studies. If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, Respondents shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing. If treatability studies are required pursuant to this paragraph, Respondents shall provide EPA with the following deliverables:

1. **Treatability Study Work Plan.** Pursuant to the schedule specified in the Identification of Candidate Technologies Memorandum Respondents shall submit a treatability study work plan, including a schedule for all other activities and submittals in the treatability study program. If EPA disapproves of or requires revisions to the treatability study work plan, in whole or in part, Respondents shall amend and submit to EPA a revised treatability study work plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing.

2. Treatability Study Sampling and Analysis Plan. If required pursuant to this paragraph,

Respondents shall submit a treatability study sampling and analysis plan as part of the Treatability Study Work Plan. If EPA disapproves of or requires revisions to the treatability study sampling and analysis plan, in whole or in part, Respondents shall amend and submit to EPA a revised treatability study sampling and analysis plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing.

3. Treatability Study Site Health and Safety Plan. If Respondents are required to conduct treatability studies pursuant to this paragraph, Respondents shall submit a treatability study site health and safety plan as part of the Treatability Study Work Plan.

4. Treatability Study Evaluation Report. According to the schedule specified in the Treatability Study Work Plan, Respondents shall submit a treatability study evaluation report as provided in the SOW and work plan. If EPA disapproves of or requires revisions to the treatability study report, in whole or in part, Respondents shall amend and submit to EPA a revised treatability study report which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing.

E. Task V: Feasibility Study. As set forth in the SOW, Respondents shall prepare a Feasibility Study ("FS") which incorporates the findings of the U.S. EPA approved RI Report and Baseline Risk Assessment.

1. **Alternatives Screening Process Technical Memorandum.** Within ninety (90) days of EPA approval of the RI Report, Respondents shall develop and submit an **Alternatives Screening Process Technical Memorandum** which refines and documents remedial action objectives; make preliminary recommendations on remedial action alternatives, identifies areas or volumes of media; identifies, screens, and documents remedial technologies; assembles and documents alternatives; refines alternatives; and documents screening evaluation of each alternative as provided in the SOW and work plan. A comparative analysis of alternatives should also be included in the Alternatives Screening Process Technical Memorandum. Within two (2) weeks of submitting the original Alternatives Screening Process Technical Memorandum, Respondents shall make a presentation to EPA during which Respondents shall summarize the findings of the remedial investigation and remedial action objectives, and present the results of the nine criteria evaluation and comparative analysis, as described in the SOW. If EPA disapproves of or requires revisions to the Alternatives Screening Process Technical Memorandum, Respondents shall amend and submit to EPA a revised Alternatives Screening Process Technical Memorandum which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

2. Draft Feasibility Study Report. Within ninety (90) days of the presentation to EPA, Respondents shall submit a draft feasibility study report ("FS Report") which reflects the findings of the RI Report and the baseline risk assessment. Respondents shall refer to Table 6-5 of the RI/FS Guidance for report content and format. If EPA disapproves of or requires revisions to the draft FS report in whole or in part, Respondents shall amend and submit to EPA a revised FS report which is responsive to the directions in all EPA comments, within thirty (30) days of

receiving EPA's comments. The report as amended, and the administrative record, shall provide the basis for the proposed plan under CERCLA Sections 113(k) and 117(a), 42 U.S.C. §§ 9613(k) and 9617(a), by EPA, and shall document the development and analysis of remedial alternatives.

51. EPA reserves the right to comment on and require changes for all deliverables. EPA also reserves the right to modify all deliverables, provided modifications fall within the scope and intent of this Consent Order. At EPA's discretion, Respondents must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

52. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS work plan and sampling and analysis plan, draft remedial investigation report, treatability testing work plan and sampling and analysis plan, and draft feasibility study report. While awaiting EPA approval on these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order.

53. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed.

54. For all remaining deliverables not enumerated above in paragraph 52, Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents from proceeding further,

either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS. If, after requiring Respondents to stop from proceeding further on any task, activity or deliverable, EPA permits Respondents to recommence the task, activity or deliverable, the applicable deadline for performance of the task, activity or deliverable will be extended by EPA for the amount of time that elapsed during the period that EPA required the Respondents to stop from proceeding further plus such additional time as EPA determines to be necessary to complete the task, activity or deliverable. EPA will notify the Respondents in writing of the length of the extension, if any, for performance of the task, activity or deliverable affected by EPA requiring Respondents to stop from proceeding further. An extension of the time for performance of any task, activity or deliverable affected by EPA requiring Respondents to stop from proceeding further shall not, of itself, extend the time for performance of any other task, activity or deliverable.

55. In the event that Respondents amend or revise a report, plan or other submittal upon receipt of EPA comments, if EPA subsequently disapproves of the revised submittal, or if subsequent submittals do not fully reflect EPA's directions for changes, EPA retains the right to seek stipulated or statutory penalties; perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from Respondents for its costs; and/or seek any other appropriate relief.

56. In the event that EPA takes over some of the tasks, but not the preparation of the RI/FS, Respondents shall incorporate and integrate information supplied by EPA into the final RI/FS report.

57. Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period(s), nor the absence of comments, shall be construed as approval or disapproval by EPA.

58. Respondents shall, prior to any off-site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Designated Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-site shipments when the total volume of such shipments will not exceed ten (10) cubic yards.

(a) The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondents shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

(b) The identity of the receiving facility and state will be determined by Respondents following the award of the contract for the remedial investigation and feasibility study. Respondents shall provide all relevant information, including information under the categories noted in paragraph 58(a) above, on the off-site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

IX. BASELINE RISK ASSESSMENT

59. Respondents will perform the baseline risk assessment during the Remedial Investigation and include it as part of the draft RI Report. The major components of the baseline risk assessment include contaminant identification, exposure assessment, toxicity assessment, and human health and ecological risk characterization. Respondents will provide, after review of all the pertinent and available Site characterization information and data, sufficient information concerning the baseline risks such that they can assess this information, along with the Remedial Action Objectives. If EPA disapproves of or requires revisions to the draft baseline risk assessment, in whole or in part, Respondents shall amend and submit to EPA a revised baseline risk assessment which is responsive to the directions in all EPA comments, within forty-five (45) days of receiving EPA's comments. EPA will indicate the basis for its disapproval or required revisions in writing.

X. MODIFICATION OF THE WORK PLAN

60. If at any time during the RI/FS process, Respondents identify a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within twenty (20) days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables.

61. In the event Respondents become aware of conditions posing an immediate threat to human health or welfare or the environment, Respondents shall notify EPA and the State of Ohio immediately. In the event of unanticipated or changed circumstances at the Site that affect the ability to perform work in a timely fashion or to comply with this Consent Order or the NCP, Respondents shall notify the EPA Project Coordinator by telephone within twenty-four (24)

hours of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the work plan, EPA in consultation with Respondents shall modify or amend the work plan in writing accordingly. Respondents shall perform the work plan as modified or amended.

62. EPA may determine that in addition to tasks defined in the initially approved work plan, other additional work may be necessary to accomplish the objectives of the RI/FS as set forth in the SOW. EPA may require in writing that Respondents perform these response actions in addition to those required by the initially approved work plan, including any approved modifications, if it determines that such actions are necessary for a complete RI/FS. Respondents shall confirm their willingness to perform the additional work in writing to EPA within fourteen (14) days of receipt of the EPA request or Respondents shall invoke dispute resolution. Subject to resolution of any dispute, Respondents shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the work plan or written work plan supplement. EPA reserves the right to conduct the work it determines necessary to accomplish the objectives of the RI/FS under this paragraph itself at any point, to seek reimbursement from Respondents, and/or to seek any other appropriate relief.

XI. QUALITY ASSURANCE

63. Respondents shall assure that work performed, samples taken and analyses conducted conform to the requirements of the SOW, the QAPP and guidance identified therein.

Respondents will assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures. Respondent(s) shall only use laboratories

which have a documented quality system that complies with ANSI/ASQC E4-1994, “Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs,” (American National Standard, January 5, 1995) and “EPA Requirements for Quality Management Plans (QA/R-2)” (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (“NELAP”) to meet the quality system requirements.

XII. FINAL RI/FS, PROPOSED, PLAN, PUBLIC COMMENT RECORD OF DECISION, ADMINISTRATIVE RECORD

64. EPA retains the responsibility for the release of the RI/FS report to the public. EPA retains responsibility for the preparation and release of the proposed plan and record of decision (“ROD”) to the public in accordance with CERCLA and the NCP.

65. EPA shall provide Respondents with the final RI/FS report, proposed plan and ROD.

66. EPA will determine the contents of and maintain the administrative record file for selection of the remedial action consistent with the NCP. Respondents shall submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Respondents shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports and other reports. Respondents must additionally submit previous studies, if any, conducted under state, local or other federal authorities relating to selection of the response action, and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents may establish a community information repository at or near the Site, to house one copy of the administrative record.

XIII. PROGRESS REPORTS AND MEETINGS

67. Respondents shall make presentations at, and participate in, meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at reasonable times at EPA's discretion.

68. In addition to the deliverables set forth in this Consent Order, Respondents shall provide to EPA monthly progress reports by the tenth (10th) day of the following month. At a minimum, with respect to the preceding month, these progress reports shall (1) describe the actions which have been taken to comply with this Consent Order during that month, (2) include all results of sampling and tests and all other data received by Respondents or reference other submittals if the results and data were submitted under separate cover, (3) describe work planned for the next two months with schedules relating such work to the overall project schedule for RI/FS completion and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XIV. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

69. All results of sampling, tests, modeling or other data (including raw data) generated by Respondents, or on Respondents' behalf, during implementation of this Consent Order, shall be submitted to EPA in the subsequent monthly progress report as described in Section XII of this Consent Order. EPA will make available to Respondents validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

70. Respondents will orally notify EPA at least fifteen (15) days prior to conducting significant field events as described in the SOW, work plan or sampling and analysis plan unless EPA agrees in writing to a shorter time. At the EPA Project Coordinator's oral or written request, or the written request of EPA's oversight assistant, Respondents shall allow split or duplicate samples to be taken by EPA (and its authorized representatives) of any samples collected by Respondents in implementing this Consent Order. All split samples of Respondents shall be analyzed by the methods identified in the QAPP.

71. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondents and their contractor pursuant to this Consent Order; reviewing the progress of Respondents in carrying out the terms of this Consent Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondents. Respondents shall allow these persons to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under federal law. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans.

72. Respondents may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order under 40 C.F.R.

Section 2.20., provided such claim is allowed by Section 104(e)(7) of CERCLA, 42 U.S.C.

Section 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. Section 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the State of Ohio without further notice to Respondents. Respondents agree not to assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

73. In entering into this Consent Order, Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the state or Respondents in the performance or oversight of the work that has been verified according to the quality assurance/quality control (“QA/QC”) procedures required by the Consent Order or any EPA-approved work plans or sampling and analysis plans. If Respondents object to any other data relating to the RI/FS, Respondents shall submit to EPA a report that identifies and explains their objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within fifteen (15) days of the monthly progress report containing the data.

74. If the Site, or the off-site area that is to be used for access or is within the scope of the RI/FS, is owned in whole or in part by parties other than those bound by this Consent Order, Respondents will obtain, or use their best efforts to obtain, Site access agreements from (a) the present owner(s) within sixty (60) days of the effective date of this Consent Order and (b) from any off-site property owner within sixty (60) days of EPA’s approval of the RI/FS Work Plan.

For the sampling of residential wells, Respondents can obtain oral consent from the property owner(s). Such agreements shall provide access for EPA, its contractors and oversight officials, the State of Ohio and its contractors, and Respondents or their authorized representatives, and such agreements shall specify that Respondents are not EPA's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA prior to Respondents' initiation of field activities. Respondents' best efforts shall include providing reasonable compensation to any off-site property owner. EPA in its discretion may waive the requirement for the Respondents to pay reasonable compensation for access to a property owner EPA determines is a PRP. If access agreements are not obtained within the time referenced above, Respondents shall immediately notify EPA of its failure to obtain access. EPA may obtain access for Respondents, perform those tasks or activities with EPA contractors, or terminate the Consent Order in the event that Respondents cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate the Consent Order, Respondents shall perform all other activities not requiring access to that portion of the Site or off-Site area, and shall reimburse EPA for all costs incurred in performing such activities. Respondents additionally shall integrate the results of any such tasks undertaken by EPA into their reports and deliverables. Furthermore, Respondents agree to indemnify the U.S. Government as specified in Section XXV of this Consent Order. Respondents also shall reimburse EPA for all costs and attorney fees incurred by the United States to obtain access for Respondents pursuant to paragraph 98.

XV. DESIGNATED PROJECT COORDINATORS

75. Documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this Consent Order, shall be sent by certified mail, return receipt requested, or by overnight mail to the following addressees or to any other addressees which Respondents and EPA designate in writing:

(a) Documents to be submitted to EPA should be sent in duplicate to:

Rosita Clarke-Moreno
Remedial Project Manager
U.S. EPA, Region 5, M/C SR-6J
77 West Jackson Blvd.
Chicago, IL 60604.
(312)886-7251
FAX (312)886-4071
clarke.rosita@epa.gov

With a copy of all submittals to:

Maria E. Gonzalez
Associate Regional Counsel
U.S. EPA, Region 5, C-14J
77 West Jackson Blvd.
Chicago, IL 60604.
(312)886-6630
FAX (312)886-0747
gonzalez.maria@epa.gov

Copy of all submittals, directly to Ohio EPA:

Scott Glum, Project Manager
Ohio Environmental Protection Agency
Southwest District Office
401 East 5th Street
Dayton, Ohio 45402
Phone (937) 285-6065
FAX (937) 285-6249
scott.glum@epa.state.oh.us

(b) Documents to be submitted to Respondents should be sent in duplicate to:

Ian Richardson
Conestoga-Rovers & Associates
651 Colby Drive
Waterloo, Ontario N2V1C2
Canada
irichardson@craworld.com

With a copy of all submittals to:

Susan M. Franzetti
Liaison Counsel
Sonnenschein Nath & Rosenthal
8000 Sears Tower
233 S. Wacker Drive
Chicago, IL 60606
szf@sonnenschein.com

76. On or before the effective date of this Consent Order, EPA and Respondents shall each designate their own Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. To the maximum extent possible, communications between Respondents and EPA shall be directed to the Project Coordinator by mail, facsimile, or email, with copies to such other persons as EPA, the state, and Respondents may respectively designate. Communications include, but are not limited to, all documents, reports, approvals, and other correspondence submitted under this Consent Order.

77. EPA and Respondents each have the right to change their respective Project Coordinator. The other party must be notified in writing at least ten (10) days prior to the change.

78. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP, to halt any work required by this Consent Order, and to take any necessary response action when s/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment.

The absence of the EPA Project Coordinator from the Site pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

79. EPA shall designate an oversight assistant (“oversight assistant”) to assist in EPA’s oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). The oversight assistant may observe work and make inquiries in the absence of EPA, but is not authorized to modify the work plan.

XVI. OTHER APPLICABLE LAWS

80. Respondents shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-site, including studies, where such action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621.

XVII. RECORD PRESERVATION

81. All records and documents in EPA's and Respondent's possession that relate in any way to the Site shall be preserved during the conduct of this Consent Order and for a minimum of 10 years after commencement of construction of any remedial action. Respondents shall acquire and retain copies of all documents that relate to the Site and are in the possession of their employees, agents, accountants, contractors, or attorneys. After this 10 year period, Respondents shall notify EPA at least ninety (90) days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, Respondents shall, at no cost to EPA, give EPA the documents or copies of the documents. Respondents may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other applicable privilege recognized by federal law. If Respondents assert such a privilege, they shall provide

the Plaintiff with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondents. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

XVIII. DISPUTE RESOLUTION

82. Unless otherwise provided in this Consent Order, any disputes concerning activities or deliverables required under this Consent Order shall be resolved as follows: If Respondents object to any EPA notice of disapproval or requirement made pursuant to this Consent Order, Respondents shall notify EPA's Project Coordinator in writing of their objections within twenty-one (21) days of receipt of the disapproval notice or requirement. Respondents' written objections shall define the dispute, state the basis of Respondents' objections, and be sent certified mail, return receipt requested or by overnight mail. EPA and Respondents then have an additional fourteen (14) days to reach agreement unless this period is extended by mutual agreement. If an agreement is not reached within fourteen (14) days, Respondents may request a determination by EPA's Director, Superfund Division. The Division Director's determination is EPA's final decision. Respondents shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondents agree with the decision. If Respondents do not agree to perform or do not actually perform the work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself, to seek

reimbursement from Respondents, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief.

83. Respondents are not relieved of their obligations to perform and conduct activities and submit deliverables on the schedule set forth in the work plan, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay stipulated penalties under this Consent Order. As set forth in paragraph 90, however, a penalty may not be due if Respondent has prevailed on the dispute over EPA's right to that penalty.

XIX. DELAY IN PERFORMANCE/STIPULATED PENALTIES

84. For each day that Respondents fail to complete a deliverable in a timely manner or fail to produce a deliverable of acceptable quality, or otherwise fail to perform in accordance with the requirements of this Consent Order, Respondents shall be liable for stipulated penalties as specified in paragraphs 87-89. Penalties begin to accrue on the day that performance is due or a violation occurs, or, in the case of any deliverable that Respondents have submitted and revised in a timely manner, on the day that EPA provides written notice that the revised deliverable is deficient, and extend through the period of correction. Where a revised submission by Respondents is required, stipulated penalties shall continue to accrue until a satisfactory deliverable is produced. EPA will provide written notice for violations that are not based on timeliness; nevertheless, penalties shall accrue from the day a violation commences. Payment shall be due within thirty (30) days of receipt of a demand letter from EPA. EPA, in its discretion, may waive any stipulated penalties that may accrue.

85. Respondents shall pay interest on the unpaid balance, which shall begin to accrue at the end of the 30-day period, at the rate established by the Department of Treasury pursuant to 30

U.S.C. § 3717. Respondents shall further pay a handling charge of 1 percent, to be assessed at the end of each 31 day period, and a six percent (6%) per annum penalty charge, to be assessed if the penalty is not paid in full within 90 days after it is due.

86. Respondents shall make all payments by forwarding a check to:

U.S. Environmental Protection Agency
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Checks shall identify the name of the Site, the Site identification number, the account number, and the title of this Consent Order. A copy of the check and/or transmittal letter shall be forwarded to the EPA Project Coordinator.

87. For the following major deliverables, stipulated penalties shall accrue in the amount of \$1000 per day, per violation, for the first seven (7) days of noncompliance; \$2000 per day, per violation, for the 8th through 14th day of noncompliance; \$4,000 per day, per violation, for the 15th day through the 30th day; and \$6,000 per day per violation for all violations lasting beyond 30 days.

- 1) An original and any revised work plan.
- 2) An original and any revised sampling and analysis plan.
- 3) An original and any revised remedial investigation report.
- 4) An original and any revised treatability study work plan.
- 5) An original and any revised treatability study sampling and analysis plan.
- 6) An original and any revised feasibility study report.
- 7) An original and any revised baseline risk assessment

88. For the following interim deliverables, stipulated penalties shall accrue in the amount of \$500 per day, per violation, for the first week of noncompliance; \$1,000 per day, per violation, for the 8th through 14th day of noncompliance; \$2,500 per day, per violation, for the 15th day

through the 30th day of noncompliance; and \$5,000 per day per violation for all violations lasting beyond 30 days.

- 1) Technical memorandum on modeling of Site characteristics.
- 2) Identification of candidate technologies memorandum
- 3) Treatability study work plan, if required under paragraph 50.D.
- 4) Treatability study evaluation report.

89. For the monthly progress reports, stipulated penalties shall accrue in the amount of \$200 per day, per violation, for the first week of noncompliance; \$500 per day, per violation, for the 8th through 14th day of noncompliance; \$1,000 per day, per violation, for the 15th day through the 30th day; and \$5,000 per day, per violation, for all violations lasting beyond 30 days.

90. Respondents may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVIII herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondents do not prevail upon resolution, all penalties shall be due to EPA within thirty (30) days of resolution of the dispute. If Respondents prevail upon resolution, no penalties shall be paid.

91. In the event that EPA provides for corrections to be reflected in the next deliverable and does not require resubmission of that deliverable, stipulated penalties for that interim deliverable shall cease to accrue on the date of such decision by EPA.

92. The stipulated penalties provisions do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA to address Respondents' failure to comply with this Consent Order, including but not limited to conduct of all or part of the RI/FS by EPA. Payment of stipulated penalties does not alter Respondents' obligation to complete performance under this Consent Order.

XX. FORCE MAJEURE

93. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes entirely beyond the control of Respondents and of any entity controlled by Respondents, including their contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondents' best efforts to avoid the delay. The requirement that Respondents exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring (provided that Respondents knew or should have known the event was occurring) and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Consent Order or the financial difficulty of Respondents to perform such work.

94. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Order, whether or not caused by a force majeure event, Respondents shall notify by telephone the Remedial Project Manager or, in his or her absence, the Director of the Hazardous Waste Management Division, EPA Region 5, within 48 hours of when Respondents knew or should have known that the event might cause a delay. Within five business days thereafter, Respondents shall provide in writing the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an

endangerment to public health, welfare or the environment. Respondents shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of force majeure.

95. If EPA agrees that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Consent Order that are directly affected by the force majeure event shall be extended by agreement of the parties, pursuant to section XXVII of this Consent Order, for a period of time not to exceed the actual duration of the delay caused by the force majeure event. An extension of the time for performance of the obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any subsequent obligation.

96. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, or does not agree with Respondents on the length of the extension, the issue shall be subject to the dispute resolution procedures set forth in section XVIII of this Consent Order. In any such proceeding, to qualify for a force majeure defense, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondents did exercise or are exercising due diligence by using their best efforts to avoid and mitigate the effects of the delay, and that Respondents complied with the requirements of paragraph 94.

97. Should Respondents carry the burden set forth in paragraph 96, the delay at issue shall be deemed not to be a violation of the affected obligation of this Consent Order.

XXI. REIMBURSEMENT OF RESPONSE AND OVERSIGHT COSTS

98. Following the issuance of this Consent Order, EPA shall submit to Respondents on a periodic basis an accounting of all response costs including oversight costs incurred by the U.S. Government with respect to this RI/FS. Response costs may include, but are not limited to, costs incurred by the U.S. Government in overseeing Respondents' implementation of the requirements of this Consent Order and activities performed by the government as part of the RI/FS and community relations, including any costs incurred while obtaining access. Costs shall include all direct and indirect costs, including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits, discussions regarding disputes that may arise as a result of this Consent Order, review and approval or disapproval of reports, costs related to baseline risk assessment, and costs of redoing any of Respondents' tasks pursuant to this Consent Order. Any necessary summaries, including, but not limited to EPA's certified Agency Financial Management Systems summary data ("SPUR Reports"), or such other summary as certified by EPA, shall serve as basis for payment demands.

99. Respondents shall, within 30 days of receipt of each accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the later of: the date payment of a specified amount is demanded in writing; or the date of the expenditure. The interest rate is the rate of interest on investments for the Hazardous Substances Superfund in Section 107(a) of CERCLA.

100. Checks shall be made payable to the Hazardous Substances Superfund and should include the name of the Site, the Site identification number, the account number and the title of this Consent Order. Checks should be forwarded to:

U.S. Environmental Protection Agency
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

101. Copies of the transmittal letter and check shall be sent simultaneously to the EPA Project Coordinator.

102. Respondents agree to limit any disputes concerning costs to accounting errors and the inclusion of costs outside the scope of this Consent Order. Respondents shall identify any contested costs and the basis of their objection. All undisputed costs shall be remitted by Respondents in accordance with the schedule set forth above. Disputed costs shall be paid by Respondents into an escrow account while the dispute is pending. Respondents bear the burden of establishing an EPA accounting error or the inclusion of costs outside the scope of this Consent Order.

XXII. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

103. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA for recovery of all response costs including but not limited to past costs and oversight costs incurred by the United States at the Site that are not reimbursed by Respondents, any costs incurred in the event that EPA performs the RI/FS or any part thereof, and any future costs incurred by the United States in connection with response activities conducted under CERCLA at this Site.

104. EPA reserves the right to bring an action against Respondents to recover past costs incurred at the Site, to enforce the response and oversight cost reimbursement requirements of this Consent Order, to collect stipulated penalties assessed pursuant to Section XIX of this Consent Order, and to seek penalties pursuant to Section 109 of CERCLA, 42 U.S.C. § 9609.

105. Except as expressly provided in this Consent Order, each party reserves all rights and defenses it may have. Nothing in this Consent Order shall affect EPA's removal authority or EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

106. Following satisfaction of the requirements of this Consent Order pursuant to Section XXVII of this Order, Respondents shall have resolved their liability to EPA under Section 104 of CERCLA for the work performed by Respondents pursuant to this Consent Order and under Section 107 of CERCLA for costs incurred by the United States that are reimbursed by Respondents pursuant to this Consent Order. Respondents shall be entitled to contribution protection to the extent provided in Section 113 of CERCLA, 42 U.S.C. § 9613, for the matters addressed in this Consent Order. The "matters addressed" in this Consent Order are the work performed by Respondents pursuant to this Consent Order and the costs incurred by the United States that are reimbursed by Respondents pursuant to this Consent Order. Respondents are not released from liability, if any, for any response actions ordered or taken beyond the scope of this Consent Order including, without limitation, removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA. Respondents are not released from liability, if any, for costs incurred or to be incurred

by the United States or other parties with respect to the Site that are not reimbursed by Respondents pursuant to this Consent Order.

XXIII. DISCLAIMER

107. By signing this Consent Order and taking actions under this Consent Order, Respondents do not agree with EPA's Findings of Fact and Conclusions of Law as set forth in this Consent Order and the attached Statement of Work. Furthermore, the participation of Respondents in this Consent Order shall not be considered an admission of liability and is not admissible in evidence against Respondents in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce this Consent Order or a judgment relating to it. Respondents retain their rights to assert claims against other potentially responsible parties at the Site. However, Respondents agree not to contest the validity or terms of this Consent Order, or the procedures underlying or relating to it in any action brought by the United States, including EPA, to enforce its terms.

XXIV. OTHER CLAIMS

108. In entering into this Consent Order, Respondents waive any right to seek reimbursement under Section 106(b) of CERCLA. Respondents also waive any right to present a claim under Section 111 or 112 of CERCLA. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA. Respondents further waive all other statutory and common law claims against EPA, including, but not limited to, contribution and counterclaims, relating to or arising out of conduct of the RI/FS.

109. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership,

subsidiary or corporation not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Site.

110. Respondents shall bear their own costs and attorneys fees.

XXV. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

111. Within 30 days of the Effective Date of this Consent Order, Respondents shall establish and maintain financial security in an amount sufficient to perform the work and any other obligations required under this Consent Order, including a margin for cost overruns, in a minimum amount of \$1,500,000 in one or more of the following forms:

- a. A surety bond guaranteeing performance of the Work;
- b. One or more irrevocable letters of credit equaling the total estimated cost of the Work;
- c. A trust fund;
- d. A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of Respondents;
- e. A demonstration that one or more of the Respondents satisfy the requirements of 40 C.F.R. Part 264.143(f); or
- f. A demonstration that one or more of the Respondents possess sufficient net worth to complete the Work required by this Consent Order, as evidenced by audited financial statements (including Form 10K) determined by EPA to show sufficient net worth.

112. If Respondents seek to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 111(a) of this Section, Respondents shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f). If Respondents seek to

demonstrate their ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 111(d) or (e) of this Section, they shall resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the Effective Date of this Consent Order. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section are inadequate, Respondents shall, within 30 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 111 of this Section. Respondents' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Order.

113. Respondents may change the form of financial assurance provided under this Section at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondents may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

114. If at any time the net worth of the financial security is insufficient to perform the work and other obligations under the Consent Order for the upcoming quarter, Respondents shall provide written notice to EPA within 7 days after the net worth of the financial security becomes insufficient. The written notice shall describe why the financial security is insufficient and explain what actions have been or will be taken to make the financial security adequate to perform the work and other obligations under the Consent Order. Within 30 days of providing the written notice to EPA, Respondents must obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 111 of this Section.

115. (a) Prior to commencement of any work under this Consent Order, Respondents shall secure, and shall maintain in force for the duration of this Consent Order, and for two years after the completion of all activities required by this Consent Order, Comprehensive General Liability ("CGL") and automobile insurance, with limits of ten million dollars (\$10,000,000), combined single limit, naming as insured the United States. The CGL insurance shall include Contractual Liability Insurance in the amount of one million dollars (\$1,000,000) per occurrence, and Umbrella Liability Insurance in the amount of two million dollars (\$2,000,000) per occurrence.

(b) Respondents shall also secure, and maintain in force for the duration of this Consent Order and for two years after the completion of all activities required by this Consent Order the following:

i. Professional Errors and Omissions Insurance in the amount of one million dollars (\$1,000,000.00) per occurrence.

ii. Pollution Liability Insurance in the amount of one million dollars (\$1,000,000.00) per occurrence, covering as appropriate both general liability and professional liability arising from pollution conditions.

(c) For the duration of this Consent Order, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of Respondents, in furtherance of this Consent Order.

(d) If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described in this paragraph, or insurance

covering the same risks but in a lesser amount, then Respondents need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

(e) Prior to commencement of any work under this Consent Order, and annually thereafter on the anniversary of the effective date of this Consent Order, Respondents shall provide to EPA certificates of such insurance and a copy of each insurance policy.

116. At least seven (7) days prior to commencing any work under this Consent Order, Respondents shall certify to EPA that the required insurance has been obtained either by Respondents or by their contractor(s).

117. Respondents agree to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondents, their employees, agents, servants, receivers, successors, or assignees, or any persons including, but not limited to, firms, corporations, subsidiaries and contractors, in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondents in carrying out activities under this Consent Order.

XXVI. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

118. The effective date of this Consent Order shall be the date it is signed by EPA.

119. This Consent Order may be amended by mutual agreement of EPA and Respondents. Amendments shall be in writing and project managers do not have the authority to sign amendments to the Consent Order.

120. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondents will be construed as relieving Respondents of their obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order.

121. In computing any period of time under this Consent Order, where the last day of the period falls on a Saturday, Sunday or Federal holiday, the period shall run until 5:00 p.m. Central Time the following day that is not a Saturday, Sunday or Federal holiday.

XXVII. TERMINATION AND SATISFACTION

122. This Consent Order shall terminate when Respondents demonstrate in writing and certify to the satisfaction of EPA that all activities required under this Consent Order, including any additional work required by EPA under Section X of this Consent Order, have been performed and payment of, response and oversight costs, and any stipulated penalties demanded by EPA, has been made in full and EPA has approved the certification. Such certification shall not, however, terminate Respondents' obligation to comply with Sections XVI, XVII, XXI, and XXIV of this Consent Order.

123. The certification shall be signed by a responsible official representing each Respondent. Each representative shall make the following attestation: "I certify that to the best of my knowledge and belief the information contained in or accompanying this certification is true, accurate, and complete." For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

IN RE: LAMMERS BARREL SITE, BEAVERCREEK, OHIO

DOCKET NO.:

Administrative Order on Consent

For Remedial Investigation/Feasibility Study

BY: _____

William E. Muno, Director
Superfund Division, Region 5
U.S. Environmental Protection Agency

DATE: _____

IN RE: LAMMERS BARREL SITE, BEAVERCREEK, OHIO

DOCKET NO.:

Administrative Order on Consent

For Remedial Investigation/Feasibility Study

BY: _____

DATE: _____

[Name and address of Respondent's signatory]

FOR: _____ [Name and address of Respondent]

STATEMENT OF WORK (SOW)
FOR PRP-CONDUCTED
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT
Lammers Barrel Site
Greene County, Ohio

INTRODUCTION

The purpose of this remedial investigation/feasibility study (RI/FS) is of affected media at the Lammers Barrel Site (Site), Greene County, in the described at paragraph 1, Section I of the Administrative Order by Consent remedial alternatives. The RI and FS are interactive and should be conducted in the RI influences the development of remedial alternatives in the FS.

The Respondents, as defined in the AOC, will conduct this RI/FS and will reports that are in accordance with this statement of work as well as any a Respondents will follow the Guidance for Conducting Remedial Investigations EPA, Office of Emergency and Remedial Response, October 1988), and any other Environmental Protection Agency (U.S. EPA) uses in conducting a RI/FS (a line). The RI/FS Guidance describes the report format and the required report content necessary personnel, materials, and services needed, or incidental to, performance specified in the administrative order.

At the completion of the RI/FS, the U.S. EPA in consultation with the (Ohio EPA), will be responsible for the selection of a site remedy and will Decision (ROD). The remedial action alternative selected by the U.S. EPA is cleanup standards specified in the Comprehensive Environmental Response, Compensation and Liability Act, Section 121. That is, the selected remedial action will be protective of human compliance with, or include a waiver of, applicable or relevant and appropriate will be cost-effective, will evaluate permanent solutions and alternative technologies, to the maximum extent practicable, and will address the status principal element. The final RI/FS report, the baseline risk assessment and the U.S. EPA in consultation with Ohio EPA, will, with the administrative order the site's remedy and will provide the information necessary to support the

As specified in CERCLA Section 104(a)(1), as amended by Superfund Amendments and Reauthorizations, the U.S. EPA will provide oversight of the Respondents' activities throughout the U.S. EPA's initiation and conduct of activities related to the implementation activities will be conducted by U.S. EPA.

All correspondence, communication, documents or deliverables required as part of the U.S. EPA, with a copy to Ohio EPA, for review and approval by the U.S. EPA. decisions made by the U.S. EPA, in consultation with the Ohio EPA. Address

Rosita Clarke-Moreno
Remedial Project Manager
United States Environmental Protection Agency
77 West Jackson Blvd., Mailcode SR-6J
Chicago, Illinois 60604-3590
Phone (312) 886-7251
FAX (312) 886-4071
Email: clarke.rosita@epamail.epa.gov

With copy to:
Scott Glum
Ohio Environmental Protection Agency
Southwest District Office
401 East 5th Street
Dayton, Ohio 45402
Phone (937) 285-6065
FAX (937) 285-6404
Email: scott.glum@epa.state.oh.us

RI/FS SCOPE The tasks to be completed as part of this RI/FS are:

Task ~~RI~~/FS Scoping - Work Plan
Task ~~Q~~ommunity Relations
Task ~~S~~ite Characterization - RI/Baseline Risk Assessment
Task ~~T~~reatability Studies
Task ~~F~~easibility Studies (RI/FS Report)

TASK 1 - SCOPING

Scoping is the initial planning process of the RI/FS and is initiated upon notice. During this time, the site-specific objectives of the RI/FS, including (PRGs), are determined by U.S. EPA. Scoping is therefore initiated prior to EPA, and is continued, repeated as necessary, and refined throughout the RI. The site specific objectives of the RI/FS, U.S. EPA, will determine a general management approach. Consistent with the general management approach, the specific project scope will be determined by U.S. EPA. The Respondents will document the specific project scope in a work plan. When the project scope for a RI/FS is not fully known at the onset, and is phased in accordance with available information, it may be necessary to modify the work plan during the study.

The remediation objectives for the Site have been determined preliminarily, based on available information, to be the following:

- ◆ Return usable ground water outside the former operational area to beneficial use wherever practicable, within a time frame that is reasonable given the particular circumstances of the Site;
- ◆ Remediate site affected soils, sediments and surface water from Little to protect human health and the environment;
- ◆ Prevent further migration of contaminants at levels which adversely affect environment from source areas such as site soils, and potentially from water from Little Beaver Creek; and
- ◆ Prevent exposure to site-related contaminants, as necessary to protect environment, specifically in the drinking water source for residents in the Woodhaven Subdivision.

The strategy for the RI/FS and general management of the Site will include:

- ◆ Conduct a remedial investigation, upon appropriate consideration of existing data, to determine fully the nature and extent of affected media at the Site and the release or threatened release of hazardous substances, pollutants, or contaminants of concern from the Site;
- ◆ Perform a feasibility study to identify and evaluate a streamlined list of alternatives for the appropriate extent of remedial action to prevent or mitigate the migration or the release or threatened release of hazardous substances, pollutants, or contaminants of concern from the site;
- ◆ Conduct appropriate actions to address priority areas pursuant to the AOC as necessary, to eliminate any identified threat to human health by the drinking water pathway if related to the Site; and
- ◆ Gather sufficient data, samples and other information in order to perform human health and ecological risk assessments for the Site.

When scoping the specific aspects of the project, the Respondents will make project planning decisions and special concerns associated with the site. by the Respondents as a function of the project planning process.

a. Site Background

The Respondents will gather and analyze the existing site background information and conduct a site visit to assist in planning the scope of the RI/FS.

Collect and analyze existing data and document the need for additional data

Before planning RI/FS activities, all existing site data will be thoroughly compiled and reviewed by the Respondents. Specifically, this will include presently available data relating to the varieties and levels of contaminants in soils and groundwater, and past disposal practices. This will also include evaluating and utilizing results from previous sampling events that have been conducted for U.S. EPA, the U.S. Army Corps of Engineers, and Ohio EPA. The Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needed to characterize the site, better define potential ARARs, and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to U.S. EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made collectively by the Respondents and by U.S. EPA.

Conduct Site Visit

The Respondents will conduct a site visit during the project scoping process to gain a conceptual understanding of sources and areas of affected media as well as receptors at the site. During the site visit the Respondents should observe and document site characteristics such as hydrology, geology, and demographics, as well as ecological features. This information will be utilized to better scope the project and develop an overall understanding of the Site. This information will also be used to determine the extent of additional data necessary to characterize the site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

b. Project Planning

Once the Respondents have collected and analyzed existing data and conducted a site visit, the project scope will be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, identifying health and safety protocols. The Respondents will meet with U.S. EPA and before the drafting of the scoping deliverables below. These tasks are **Deliverables** of this task, since they result in the development of specific

Refine and document preliminary remedial action objectives and alternatives

Once existing site information has been analyzed and an understanding determined by the U.S. EPA, the Respondents will review and, if necessary, revise remedial action objectives that have been identified by the U.S. EPA, for each actual remedial action. Revised remedial action objectives will be documented in the **Alternatives Process Technical Memorandum** to be prepared as part of the feasibility study and are subject to the U.S. EPA approval. The Respondents will then identify a list of possible remedial alternatives for the site. The range of potential alternatives should encompass where a treatment significantly reduces the toxicity, mobility, or volume of the contaminants; a no-action alternative; and a no-treatment alternative. The need for treatability studies should be identified and then followed through the Alternatives Process.

Begin preliminary identification of Potential ARARs

The U.S. EPA will provide the Respondents with a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific and action-specific) to assist in the refinement of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as site conditions, contaminants of concern, and remedial action alternatives are better defined.

c. **Scoping Deliverables**

At the conclusion of the project planning phase, the Respondents will submit a RI/FS work plan, a sampling and analysis plan. The RI/FS work plan and sampling and analysis plan must be reviewed and approved by Ohio EPA, prior to the initiation of field activities.

RI/FS Work Plan

A work plan documenting the decisions and evaluations completed during the planning phase will be submitted to the U.S. EPA for review and approval. The work plan will be developed in conjunction with the sampling and analysis plan and the site health and safety plan, although each plan may be delivered under separate cover. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, the work plan must include the rationale for the remedial action. Specifically, the work plan will present a statement of the problem(s) at the site and the objectives of the RI/FS. Furthermore, the plan will include a description of the site and the objectives of the RI/FS.

forth the site description including the geographic location of the site, a description of the site's physiography, hydrology, geology, demography, and a description of the site history and a description of previous responses that have been taken by state, federal, or private parties; a summary of the existing data and characteristics of the contaminants identified, and their distribution in environmental media at the site. The plan will recognize Respondents' health and ecological risk assessment. In addition, the plan will include a management strategy developed by the U.S. EPA during scoping, a preliminary list of alternatives and data needs for evaluation of remedial alternatives. It will include coordination with treatability study requirements. It will include identifying Federal and state ARARs (chemical-specific, location-specific).

Finally, the major part of the work plan is a detailed description of the tasks needed for each task and for the baseline human health and ecological risk assessment produced during and at the conclusion of each task, and a description of the work submitted to the U.S. EPA with copy to Ohio EPA. This includes the development of this statement of work; a schedule for each of the required activities; guidance; and a project management plan, including a data management plan, management systems and software, minimum data requirements, data format, and reports to U.S. EPA; and meetings and presentations to the U.S. EPA at the RI/FS. The Respondents will refer to Appendix B of the RI/FS Guidance for the contents of the required work plan. Because of the incomplete knowledge of the iterative nature of the RI/FS, additional data requirements and analysis needs will be identified during the process. The Respondents will submit a technical memorandum documenting the analysis needs identified by the U.S. EPA in consultation with Ohio EPA objectives of this RI/FS.

Sampling and Analysis Plan

The Respondents will prepare a sampling and analysis plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities and consists of a field sampling plan (FSP) and a quality assurance project plan (QAPP).

The FSP will define in detail the sampling and data gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will at a minimum reflect use of analytic methods to identify affected media and remediate affected media consistent with the levels for remedial action objectives identified for this site and consistent with the National Contingency Plan (NCP). In addition, the QAPP will

address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. The Respondents will demonstrate, in advance to the U.S. EPA's satisfaction, that each laboratory it will use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by the U.S. EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this site for the purposes proposed and QA/QC procedures approved by U.S. EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for U.S. EPA review and approval. Non-CLP protocol may be required to obtain detection limits suitable for risk assessment purposes. The U.S. EPA may require that the Respondents submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. The Respondents will provide assurances that the U.S. EPA has access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

Site Health and Safety Plan

A health and safety plan (HASP) will be prepared in conformance with the Respondents' health and safety program, and in compliance with OSHA regulations and protocols. The health and safety plan will include the 11 elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. It should be noted that the U.S. EPA does not "approve" the Respondents' health and safety plan, but reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities in accordance with EPA guidance and the NCP are the responsibility of the U.S. EPA. The critical community relations planning steps performed by the U.S. EPA include conducting community interviews and developing a community relations plan. Although implementation of the community relations plan is the responsibility of the U.S. EPA, the Respondents may assist by providing information regarding the site's history, participating in public meetings, assisting in the preparation of fact sheets for distribution to the general public, or conducting other activities approved by the U.S. EPA. The Respondents' responsibilities in U.S. EPA's community relations activities, if any, shall be specified in the community relations plan. All community relation activities initiated by Respondents will be subject to oversight by the U.S. EPA, in coordination with Ohio EPA.

TASK 3 - SITE CHARACTERIZATION

As part of the RI, the Respondents will perform the activities described in this task, including the preparation of an RI report. The RI conducted by Respondents will include an evaluation and analysis of existing data available for the site and determine areas requiring additional investigation. Data gap collection shall focus on the extent of affected media (e.g., site soils, groundwater, and sediments and surface water in Little Beaver Creek) as a result of the Site related activities. Site affected residential wells shall also be defined and evaluated. The need to mitigate any threat to human health from exposure and ingestion of affected groundwater or from the indoor air migration pathway shall also be evaluated. The overall objective of site characterization is to describe areas of a site that may pose a threat to human health or the environment. This is accomplished by first determining a site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The Respondents will identify the sources of these contaminants and define the nature, extent, and volume of the affected media, including their physical and chemical constituents as well as their concentrations relative to background in the affected media. The Respondents will also investigate the extent of migration of these contaminants as well as their volume and any changes in their physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of affected media at the site. Using this information, fate and transport of contaminants will then be determined and projected.

During this phase of the RI/FS, the work plan, SAP, and HASP are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents will notify U.S. EPA at least two weeks in advance of the field work regarding the planned dates for any field activities including, but not limited to, ecological field surveys, field lay out of the sampling locations, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The Respondents will demonstrate that the laboratory and type of laboratory analyses that will be utilized during site characterization meets the specific QA/QC requirements and the DQOs of the site investigation as specified in the SAP. In view of the incomplete knowledge regarding site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the Respondents to supplement the work specified in the initial work plan. In addition to the deliverables below, the Respondents will provide a monthly progress report and participate in meetings at major points in the RI/FS.

a. Field Investigation

The field investigation includes the gathering of data to define site physical and ecological characteristics, sources of contaminants, and the nature and extent of affected media at the site. These activities will be performed by the Respondents in accordance with the approved work plan and SAP. At a minimum, this shall address the following:

Implement and document field support activities

The Respondents will initiate field support activities following approval of the work plan and SAP. Field support activities may include obtaining access to the site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents will notify the U.S. EPA at least two weeks prior to initiating field support activities so that the U.S. EPA may adequately schedule oversight tasks. The Respondents will also notify U.S. EPA in writing upon completion of

Investigate and define site physical and ecological characteristics

The Respondents will collect data on the characteristics of the site and its surrounding areas including the physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the site's physical characteristics the Respondents will also obtain sufficient engineering data including, but not limited to pumping characteristics for the projection of fate and transport of contaminants of concern, and development and screening of remedial action alternatives, including information to assess treatment technologies.

Define sources of contaminants

The Respondents will locate each potential source of contaminants of concern. For each location, the areal extent and depth of affected media will be determined by sampling at incremental depths, as required by the U.S. EPA. The physical and chemical characteristics of contaminants and their concentrations will be determined for all known and discovered sources of contaminants of concern. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of these contaminants will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and other characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Describe the nature and extent of affected media

The Respondents will gather information to describe the nature and extent of affected media as a final step during the field investigation. To describe the nature and extent of affected media, the Respondents will utilize the information on site physical and ecological characteristics

and sources of contaminants to give a preliminary estimate of the contaminants that may have migrated. The Respondents will then implement an iterative monitoring program and any study program identified in the work plan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the site can be determined. In addition, the Respondents will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of affected media are known to the level established in the QA/QC plan and DQOs. Respondents, and the U.S. EPA in consultation with Ohio EPA, will use the information on the nature and extent of affected media to determine the level of risk presented by the site. Respondents will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analyses

Evaluate site characteristics

The Respondents will analyze and evaluate the data to describe: (1) site physical and ecological characteristics, (2) constituent source characteristics, (3) nature and extent of affected media and (4) fate and transport of contaminants of concern. Results of the site physical characteristics, source characteristics, and extent of affected media are utilized in the analysis of contaminant fate and transport of contaminants of concern. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contaminants of concern as well as mobility and persistence of contaminants of concern. Where modeling is appropriate, such models shall be identified to the U.S. EPA in a Technical Memorandum on Modeling of Site Characteristics prior to their use. All data and programming, including any proprietary programs, shall be made available to the U.S. EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., computer disc or equivalent) to facilitate the U.S. EPA's evaluation of the baseline human health and ecological risk assessment. The Respondents shall discuss and then collect any data to fill data gaps identified by the U.S. EPA, in consultation with Ohio EPA, that are needed to complete the baseline human health and ecological risk assessment. (See "Guidance for Data Usability in Risk Assessment - OMER Directive # 9285.7-05 - October 1990.) Also, this evaluation shall provide information relevant to site characteristics necessary for evaluation of the need for remedial action in the baseline human health and ecological risk assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

c. Data Management Procedures

The Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document field activities

Information gathered during site characterization will be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain sample management and tracking

The Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. As appropriate, data collected in past investigation activities shall be used by Respondents to help steer the data gap collection events and develop site conceptual model in conjunction with new data. Analytical results developed under the work plan will not be included in any site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documents.

d. Baseline Risk Assessment

The Respondents shall prepare a baseline risk assessment according to requirements of Section IX of the Administrative Order on Consent. The baseline risk assessment shall be included as part of the draft RI report.

e. Remedial Investigation Report

The Respondents will prepare and submit the draft RI report for review.

This RI Report will document and describe the investigative activities that have taken place, and describe and display site data documenting the location and characteristics of surface and subsurface features and contaminants of concern at the site including the affected medium, location, types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant of concern throughout each source and the extent of contaminant migration through each of the affected media will be documented. Any modeling performed by the Respondents will also be presented in the RI Report. The report shall also include the baseline risk assessment. The RI Report shall provide the basis for evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

TASK 4 - TREATABILITY STUDIES

If determined to be necessary by the U.S. EPA, in consultation with Ohio EPA, or the Respondents with U.S.

EPA approval, treatability studies will be performed by the Respondents to assist in the analysis of alternatives. In addition, if applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the Respondents, as appropriate.

a. Determination of Candidate Technologies and of the Need for Testing

The Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for this site on the basis of available information, a treatability study work plan will be prepared.

The Respondents will identify in the Identification of Candidate Technologies Memorandum, subject to the U.S. EPA review and approval, potentially applicable technologies that would require a treatability study program as early as possible. The specific data requirements for the testing program will be determined and refined during the development of the FS. The draft Identification of Candidate Technologies Memorandum shall be submitted for U.S. EPA review and approval within 60 days of the submittal of the draft RI Report. This memorandum shall include specific deliverables and schedules for completion.

b. Treatability Study and Deliverables

If treatability studies are determined by U.S. EPA or by the Respondents with U.S. EPA approval to be necessary, the deliverables that are required include a work plan, a SAP, and a final treatability evaluation report in addition to the Identification of Candidate Technologies Memorandum. The U.S. EPA may also require a treatability study HASP, where appropriate.

Treatability study work plan

The Respondents will prepare a treatability study work plan or amendment to the original site work plan for the U.S. EPA review and approval describing the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site, permitting requirements will be addressed.

Treatability study SAP

If the original QAPP or FSP is not adequate for defining the activities to be performed during the treatability tests, a separate treatability study SAP or amendment to the original site SAP will be prepared by the Respondents for review and approval by the U.S. EPA. Task 1, Item c. of this statement of work

provides additional information on the requirements of the SAP.

Treatability study health and safety plan

If the original HSP is not adequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by the Respondents. Task 1, Item c. of this statement of work provides additional information on the requirements of the health and safety plan. The U.S. EPA does not "approve" the HSP, but reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the envi

Treatability study evaluation report

Following completion of treatability testing, the Respondents will analyze and interpret the testing results in a technical report to the U.S. EPA. Depending on the sequence of activities, this report may be a part of the FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 5 - Feasibility Study

The Respondents shall prepare and submit for U.S. EPA review and approval an Alternatives Screening Process Technical Memorandum and an FS report. The FS report will incorporate the findings of the U.S. EPA approved RI and Baseline Risk Assessment Report. The FS shall consist of development and screening of remedial alternatives and a detailed analysis of remedial alternatives. Within 2 weeks of Alternatives Screening Process Technical Memorandum submittal, Respondents shall make a presentation to U.S. EPA during which Respondents shall summarize the findings of the remedial investigation and remedial action objectives, and present the results of the nine criteria evaluation and comparative analysis, as described below.

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed by the Respondents as a function of the development and screening of remedial alternatives.

a. Development and Screening of Remedial Alternatives

The Respondents will begin to develop and evaluate a list of waste management options that at a minimum ensure protection of human health and the environment, concurrent with the

Refine and document remedial action objectives

Based on the baseline human health and ecological risk assessment, the Respondents will review and if necessary modify the site-specific remedial action objectives, specifically the Preliminary Remediation Goals (PRGs), that were established by the U.S. EPA, in consultation with Ohio EPA, prior to or during negotiations between the U.S. EPA and the Respondents. The revised PRGs will be documented in the Alternatives Screening Process Technical Memorandum that will be reviewed and approved by the U.S. EPA. These modified PRGs will specify the contaminants of concern and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations).

Develop general response actions

The Respondents will develop a list of alternatives to satisfy the remedial action objectives. This will be documented in the Alternatives Screening Process Technical Memorandum.

Identify areas or volumes of media

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the site will also be taken into account, and documented in the Alternatives Screening Process Technical Memorandum.

Identify, screen, and document remedial technologies

The Respondents will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized for inclusion in the Alternatives Screening Process Technical Memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Assemble and document alternatives

The Respondents will assemble selected representative technologies into a list of alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the site or the operable unit as a whole. A summary of the assembled alternatives and their related action-specific APARs will be prepared by the Respondents for inclusion in the Alternatives Screening Process Technical Memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine alternatives

Sufficient information will be collected for an adequate comparison of alternatives. ERGs for each chemical in each medium will also be modified as necessary to incorporate any new human health and ecological risk assessment information presented in Respondent's baseline human health and ecological risk assessment report. Additionally, action-specific APARs will be updated as the remedial alternatives are refined. This will be documented in the Alternatives Screening Process Technical Memorandum.

Conduct and document screening evaluation of each alternative

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Alternatives Screening Process Technical Memorandum will summarize the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific APARs for the alternatives that remain after screening.

b. Alternatives Development and Screening Deliverables

The Respondents will prepare an Alternatives Screening Process Technical Memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. These will be modified by the Respondents if required by the U.S. EPA's comments to assure identification of a complete and appropriate list of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

The detailed analysis will be conducted by the Respondents to provide the U.S. EPA with the information needed to allow for the selection of a site remedy. This analysis is the final task to be performed by the Respondents during the FS.

c. Detailed Analysis of Alternatives

The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

Apply nine criteria and document analysis

The Respondents will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, APARs; will be cost-effective; will evaluate permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and

will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the Respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment. If the Respondents do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by the U.S. EPA, in consultation with Ohio EPA.

Compare alternatives against each other and document the comparison of

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by the U.S. EPA, in consultation with Ohio EPA.

d. Feasibility Study Report

The Respondents will prepare a draft FS report for review and approval by the U.S. EPA. This report shall summarize results of field activities to characterize the site, sources of affected media, nature and extent of affected media, the fate and transport of contaminants of concern and the analysis of remedial alternatives. The draft FS report will also include the results of the Alternatives Screening Process Technical Memorandum. This report may include the results of the baseline human health and ecological risk assessment. The Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Following comments by the U.S. EPA, the Respondents will prepare a final FS report which satisfactorily addresses the U.S. EPA'

The FS report and the RI Report, as ultimately adopted or amended by the U.S. EPA, in consultation with Ohio EPA, provides a basis for remedy selection by the U.S. EPA and documents the development and analysis of remedial alternatives. The Respondents will refer to the RI/FS Guidance for an outline of the report format and the required report content.

SCHEDULE OF TASKS AND MAJOR DELIVERABLES

The schedule for Deliverables is specified in the Administrative Order.

A Table with Schedule for Deliverables will be inserted once AOC is agreed upon.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that may apply to the RI/FS process:

The (revised) National Contingency Plan

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," The U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-0

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," The U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," The U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

"A Compendium of Superfund Field Operations Methods," Two Volumes, The U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984,

"Data Quality Objectives for Remedial Response Activities," The U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSW

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," The U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," The U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory Program," The U.S. EPA, Sample

"Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," The U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-0

"CERCLA Compliance with Other Laws Manual," Two Volumes, The U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," The U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Preparing Superfund Decision Documents," The U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)," December 1989, EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G

"Performance of Risk Assessments in Remedial Investigation /Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Role of the Baseline Risk Assessment in Superfund Remedial Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employees Employed in Field Activities," The U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 C.F.R. 1910.120 (Federal Register 45654, December 19

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," The U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," The U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," The U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

"The U.S. EPA Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments." EPA540-R-97-006. Office of Ecological and Remedial Response,